EXECUTIVE SUMMARY

The City of Chicago (City), as owner and operator of the Chicago O'Hare International Airport (O'Hare or the airport), proposes to modernize O'Hare to provide updated facilities, retain operational efficiency for existing and future demand, avoid additional delay, and consolidate facilities. The City completed a draft update to depict the proposed Terminal Area Plan (TAP), Capital Improvement Projects, and hotel developments. The Federal Aviation Administration (FAA) proposes to permanently implement 2.5 degree offset (angled) air traffic approach procedures for Runway 10R/28L that were temporarily approved in the 2015 Written Re-Evaluation of the O'Hare Modernization Program Environmental Impact Statement (OMP EIS). The TAP, Capital Improvement Projects, hotel developments, and offset air traffic approach procedures for Runway 10R/28L are hereinafter referred to as the "Proposed Action."

This Draft Environmental Assessment (EA) and General Conformity Determination has been prepared pursuant to the National Environmental Policy Act of 1969 (NEPA), including its implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500–1508 [1978])[1,2] promulgated by the Council on Environmental Quality (CEQ), FAA Order 1050.1F[3] and the 1050.1F Desk Reference,[4] FAA Order 5050.4B,[5] and airspace actions under FAA Order JO 7400.2N.[6] The FAA is responsible for analyzing the potential environmental consequences of federal approvals and other actions to support the Proposed Action and reasonable alternatives.

This EA considers future development for years 2023 through 2032.

The projects within the Proposed Action are detailed in **Table ES-1**. The Proposed Action is divided into five areas:

1. Terminal Projects,
2. On-Airport Hotels,
3. Airfield and Taxiway Improvements Not Required by the Terminal Projects,
4. Support Facilities Not Required by the Terminal Projects, and

[1] 40 CFR Sections 1500-1508 (1978). All references to CEQ regulations refer to the 1978 regulations. The FAA initiated preparation of the EA in 2019 prior to the September 2020 revisions to the CEQ regulations. The new regulations provide agencies the discretion to apply the 1978 regulations if the NEPA review process started before the implementation of the 2020 Final Rule. *See* 40 CFR 1506.13 (2020). See also 85 Federal Register at 43340 (July 16, 2020), which states, "For NEPA reviews in process that agencies began before the final rule's effective date, agencies may choose whether to apply the revised regulations or proceed under the 1978 regulations and their existing agency NEPA procedures."

[2] The CEQ published a final rule in the Federal Register on April 20, 2022, to amend certain provisions of its regulations for implementing NEPA. The rule is effective on May 20, 2022. This Draft EA was prepared in accordance with the 1978 version of the CEQ's NEPA-implementing regulations.

[3] Federal Aviation Administration. Order 1050.1F Environmental Impacts: Policies and Procedures, Effective July 16, 2015. Accessed December 13, 2021, at https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf

[4] Federal Aviation Administration. 1050.1F Desk Reference (v2), Effective February 2020. Accessed December 13, 2021, at https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/apl/desk-ref.pdf

[5] Federal Aviation Administration. Order 5050.4B. National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, Effective April 28, 2006. Accessed April 5, 2022, at https://www.faa.gov/airports/resources/publications/orders/environmental_5050_4/media/5050-4B_complete.pdf

[6] Federal Aviation Administration. Order 7400.2N. Procedures for Handling Airspace Matters, Effective June 17, 2021. Accessed April 5, 2022, at https://www.faa.gov/documentLibrary/media/Order/7400.2N_Basic_with_Chg1_dtd_12_2_21_508.pdf

5. Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L.

Exhibits ES-1, **ES-2**, and **ES-3** show the location of the Chicago Department of Aviation's (CDA) terminal projects. **Exhibit ES-4** shows the location of the two on-airport non-aeronautical projects (i.e., hotels), while **Exhibits ES-5** and **ES-6** show the six airfield and taxiway improvement projects. **Exhibits ES-7**, **ES-8**, and **ES-9** show the nine support facilities projects.

The proposed air traffic actions would retain aircraft operational efficiencies and flexibilities gained from the 2.5 degree offset approaches to Runways 10R and 28L that were temporarily approved in 2015. With 3,100 feet separating Runway 10R/28L and the adjacent parallel Runway 10C/28C, the final approaches to Runways 10R and 28L must be offset from their extended centerline to allow independent simultaneous approaches to Runways 10R and 10C, or to Runways 28L and 28C under current operating rules. This temporary approval was in accordance with FAA safety guidance when the new runway was commissioned in October 2015. The 2015 Written Re-Evaluation assumed the offset air traffic approaches would expire when build out of the OMP occurred—i.e., when the extension of Runway 9R/27L is fully operational (currently planned for the end of 2022, at the earliest).

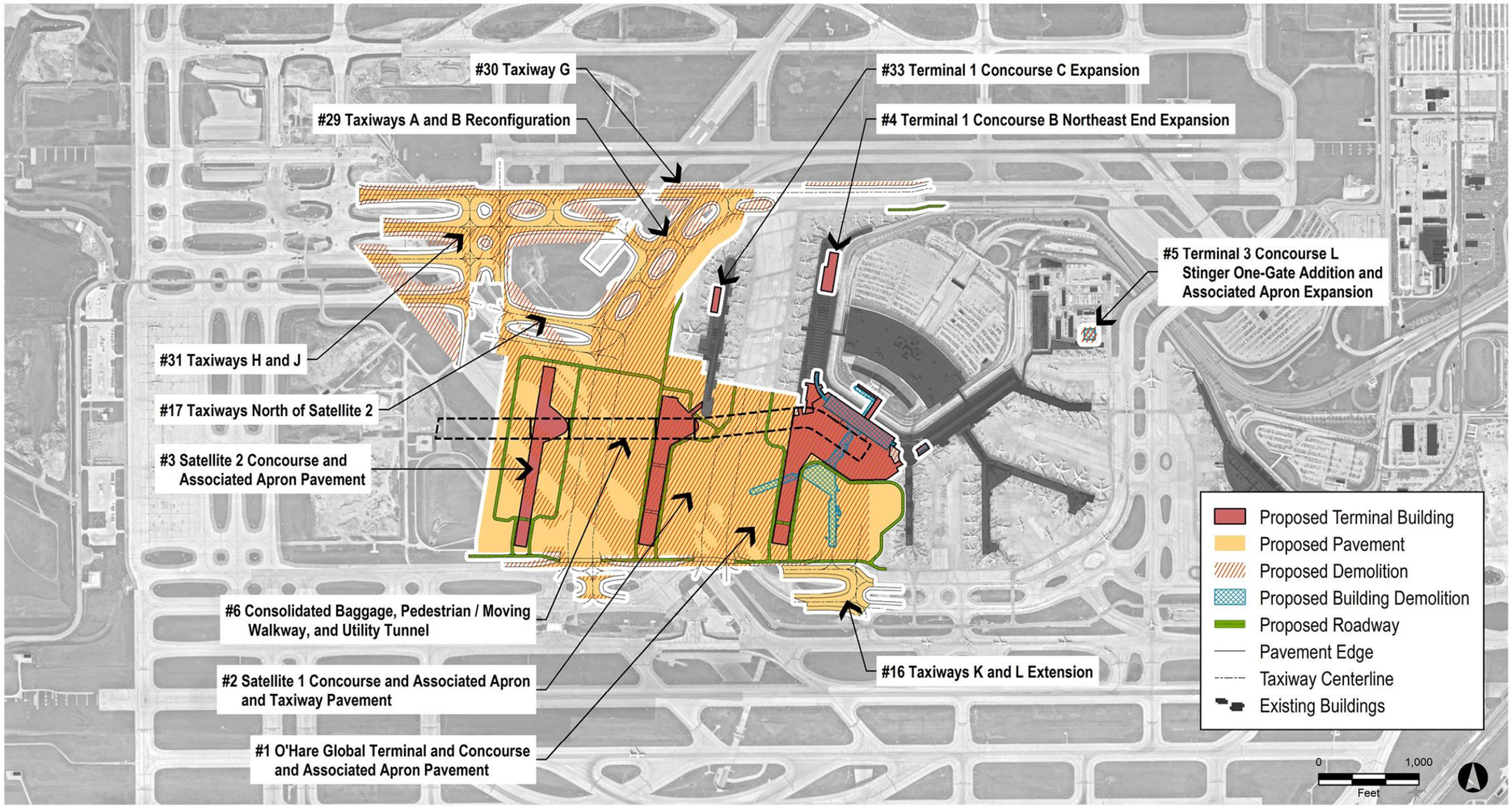
Exhibits ES-10 and **ES-11** show examples of the offset air traffic approaches for the Existing Condition and for the Proposed Action during east and west flow operations, respectively. **Exhibits ES-12** and **ES-13** show the approaches for the No Action Alternative, without the offset air traffic approaches, for east and west flow operations, respectively. **Exhibits ES-14** and **ES-15** show an example of approaches for the Proposed Action Alternative for east and west flows, respectively.

TABLE ES-1
PROPOSED ACTION

EA Project Grouping	[CDA Project Number] and Exhibit Number	Project Name (full)	Proposed Resultant Footprint Area
Terminal Projects	[1] ES-1	O'Hare Global Terminal and Concourse and Associated Apron Pavement	2.2 million sq. ft.
	[2] ES-1	Satellite 1 Concourse and Associated Apron and Taxiway Pavement	700,000 sq. ft.
	[3] ES-1	Satellite 2 Concourse and Associated Apron Pavement	530,000 sq. ft.
	[4] ES-1	Terminal 1 Concourse B Northeast End Expansion	41,000 sq. ft.
	[5] ES-1	Terminal 3 Concourse L Stinger One-Gate Addition and Associated Apron Expansion	34,000 sq. ft.
	[6] ES-1	Consolidated Baggage, Pedestrian/Moving Walkway, and Utility Tunnel	N/A
	[7] ES-3	Terminal 5 Curbside Addition and Interior Reconfiguration	63,000 sq. ft.
	[8] ES-3	Terminal 5 Roadway Improvements	195,000 sq. ft. new roadway
	[9] ES-3	Terminal 5 Curbside Expansion	100,000 sq. ft. new roadway; 76,000 sq. ft. reconfigured roadway

EA Project Grouping	[CDA Project Number] and Exhibit Number	Project Name (full)	Proposed Resultant Footprint Area
	[26] ES-3	Terminal 5 Parking Garage - Phase 2	55,000 sq. ft.
	[16] ES-1	Taxiways K and L Extension (Between Taxiway A11 and Taxiway A13)	260,000 sq. ft. new taxiway
	[17] ES-1	Taxiways North of Satellite 2 (Between Relocated Taxiways A and B and Penalty Box Hold Pad)	620,000 sq. ft. new taxiway
	[29] ES-1	Taxiways A and B Reconfiguration (Between Penalty Box Hold Pad and Taxiway G)	780,000 sq. ft. of new taxiway
	[30] ES-1	Taxiway G (Existing Taxiway H; Between Future Taxiway T and Taxiway A1)	700,000 sq. ft. of new taxiway
	[31] ES-1	Taxiways H and J (South of Runway 9R Extension from Taxiway SS to Runway 4L/22R)	750,000 sq. ft. of new taxiway
	[33] ES-1	Terminal 1 Concourse C Expansion (North)	32,000 sq. ft.
	[T1] ES-2	Temporary Walkway/Extended Jetway from Concourse C (With 6 Gates)	20,000 sq. ft.
	[T2] ES-2	Temporary Heating and Refrigeration Facility (Near Satellite 2)	64,000 sq. ft.
On-Airport Non-Aeronautical Projects	[22] ES-4	Multimodal Facility (MMF) Hotel, Mixed-Use Development, and Detention Basin Relocation	170,000 sq. ft.
	[25] ES-4	Terminal 5 Hotel Facility and Pedestrian Bridge	175,000 sq. ft.
Airfield and Taxiway Improvements	[20] ES-5	Bravo Hold Pad Conversion	890,000 sq. ft. of pavement
	[23] ES-6	Runway 9L/27R Exit Taxiways	405,000 sq. ft. of new taxiway
	[24] ES-5	Runway 28R Blast Pad Expansion	58,000 sq. ft.
	[32] ES-5	Taxiways P, V, and Y Reconfiguration (Between Taxiway RR and the Existing Runway 28R Hold Pad)	1.3 million sq. ft. of new taxiway
	[37] ES-5	Demolition and Removal of Temporary Taxiway T Between Taxiway P and Taxiway P6 (North of Runway 10C/28C)	removal of 35,000 sq. ft. of taxiway
	[38] ES-5	Taxiway DD Realignment at the Taxiway Q Intersection (near the South Central Cargo Apron)	replacement and realignment of 120,000 sq. ft. of taxiway
Support Facilities	[10] ES-9	West Heating and Refrigeration Facility	130,000 sq. ft.
	[11] ES-9	West Employee Screening Facility	720,000 sq. ft.
	[12] ES-9	West Employee Ground Transportation Facility and Parking Garage	740,000 sq. ft.
	[13] ES-9	West Employee Landside Access	800,000 sq. ft. new roadway
	[14] ES-9	West Landside Detention Basins	9 acres land; 86 acre-ft stormwater
	[15] ES-7, ES-9	Airside Service Roadways	512,000 sq. ft. new roadway
	[19] ES-8	Aircraft Rescue and Firefighting (ARFF) Station 4 Relocation	67,000 sq. ft.
	[21] ES-7	Commercial Vehicle Holding Area (CVHA) Expansion	172,000 sq. ft.
	[35] ES-9	Centralized Distribution and Receiving Facility (CDRF)	280,000 sq. ft.

EA Project Grouping	[CDA Project Number] and Exhibit Number	Project Name (full)	Proposed Resultant Footprint Area
Air Traffic Actions	[N/A] ES-10 – ES-15	Offset Approach Procedures for Runway 10R/28L	N/A



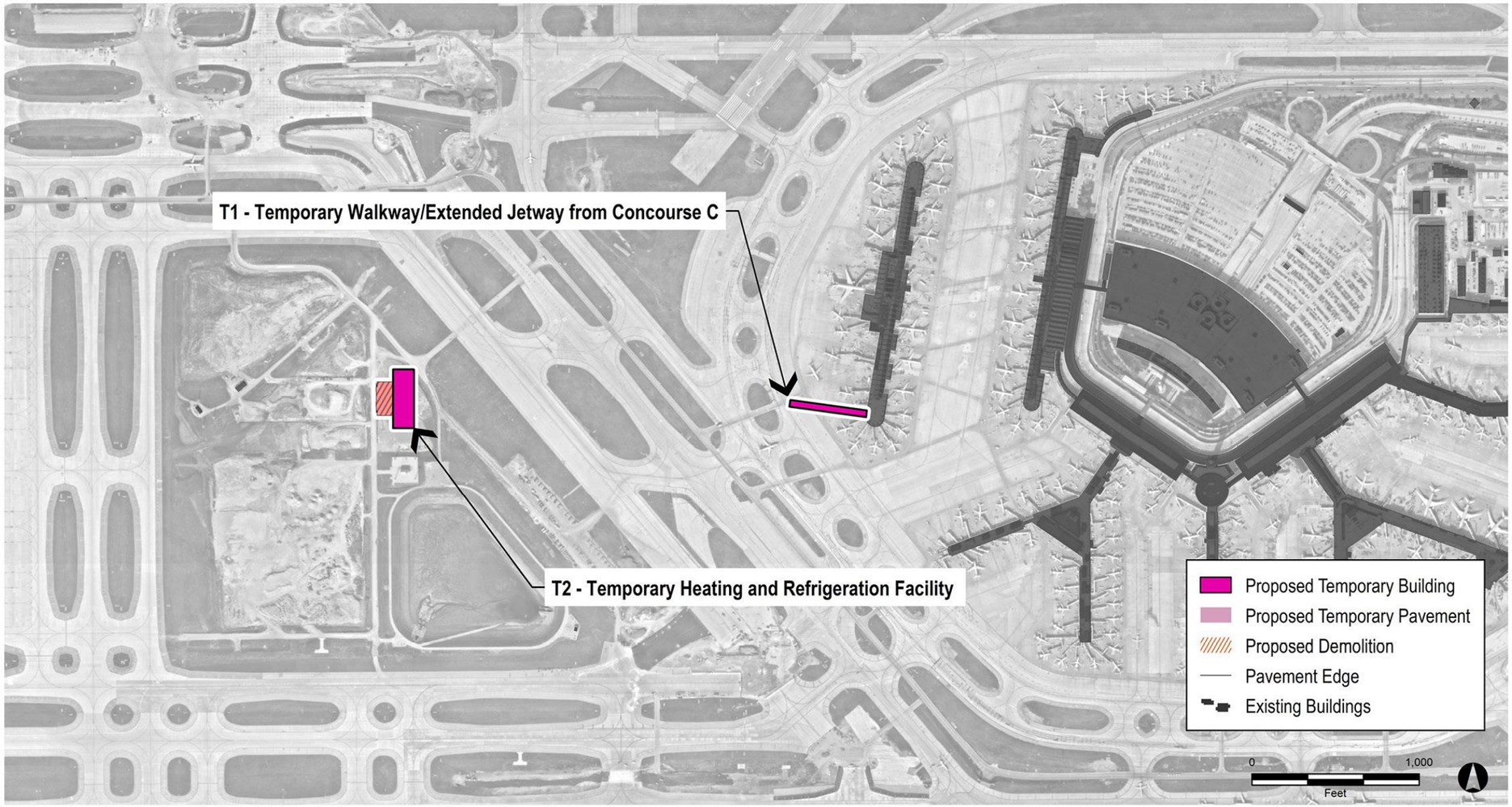
Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Terminal Projects (Set 1 of 3) - O'Hare Global Terminal and Satellite Terminal Projects

Exhibit ES-1

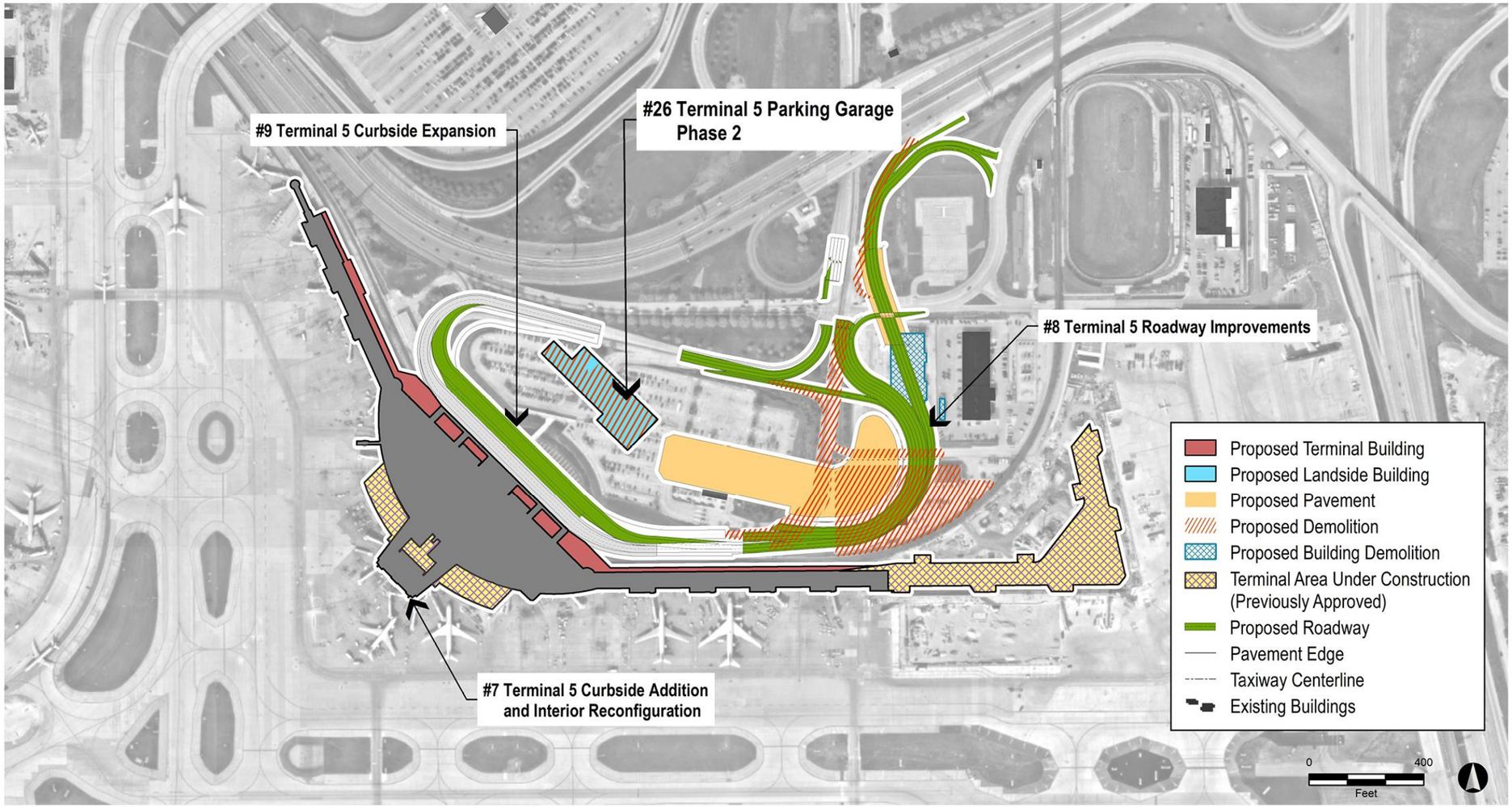


Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Terminal Projects (Set 2 of 3) - O'Hare Global Terminal and Satellite Terminal Temporary Projects

Exhibit ES-2



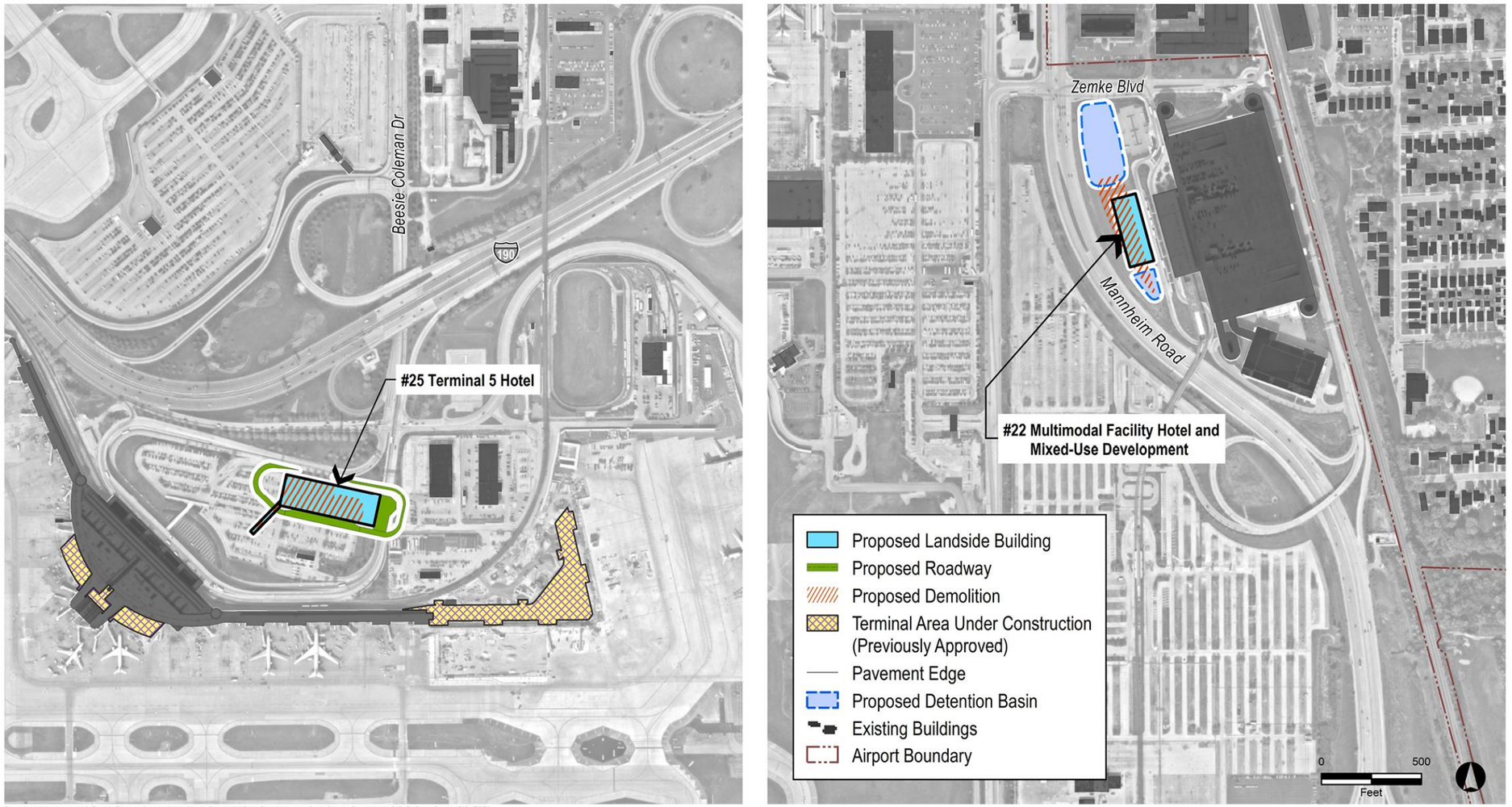
Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Terminal Projects (Set 3 of 3) - O'Hare Terminal 5 Projects

▸ Exhibit ES-3

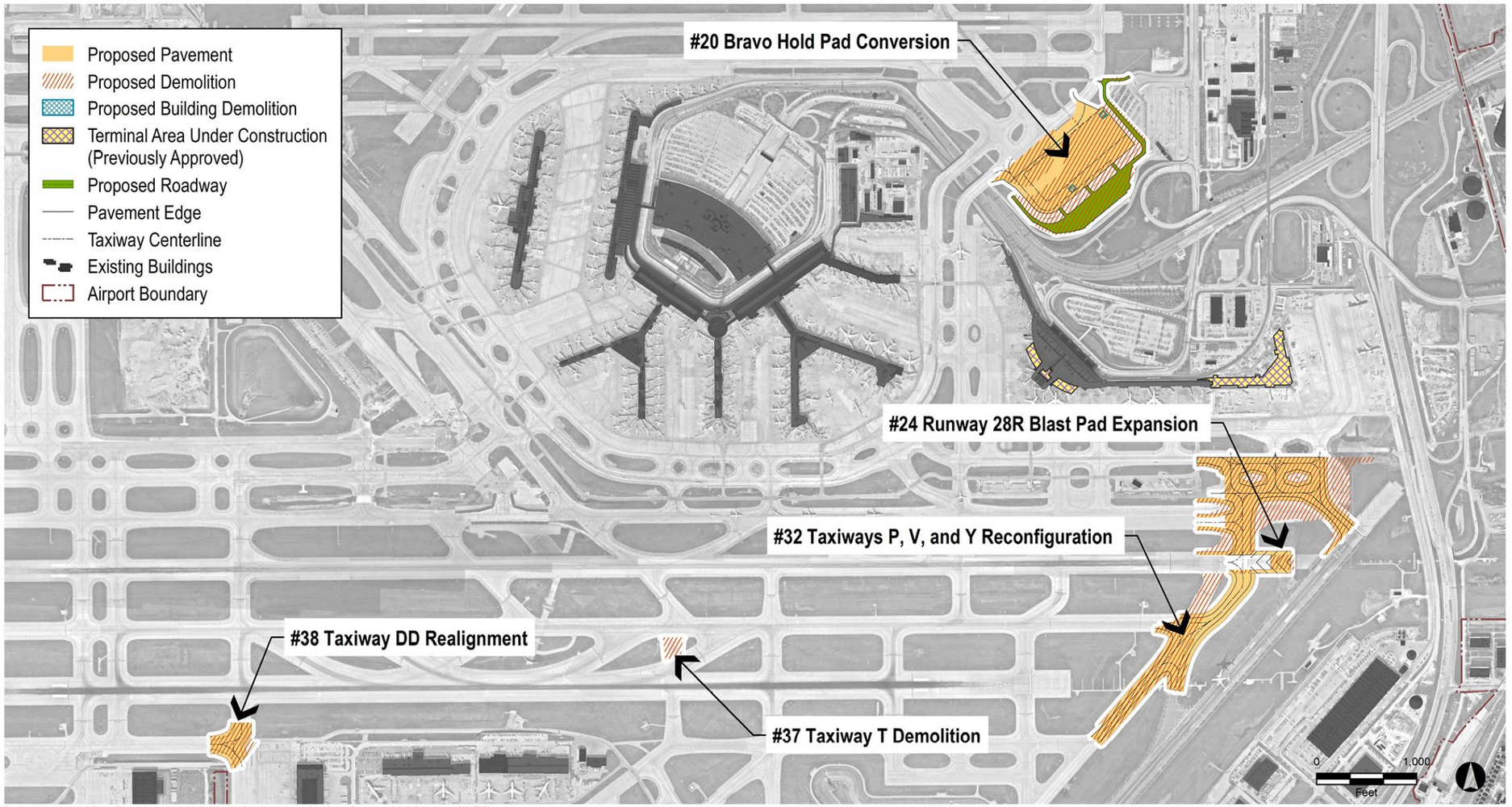


Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

On-Airport Hotels

▸ Exhibit ES-4

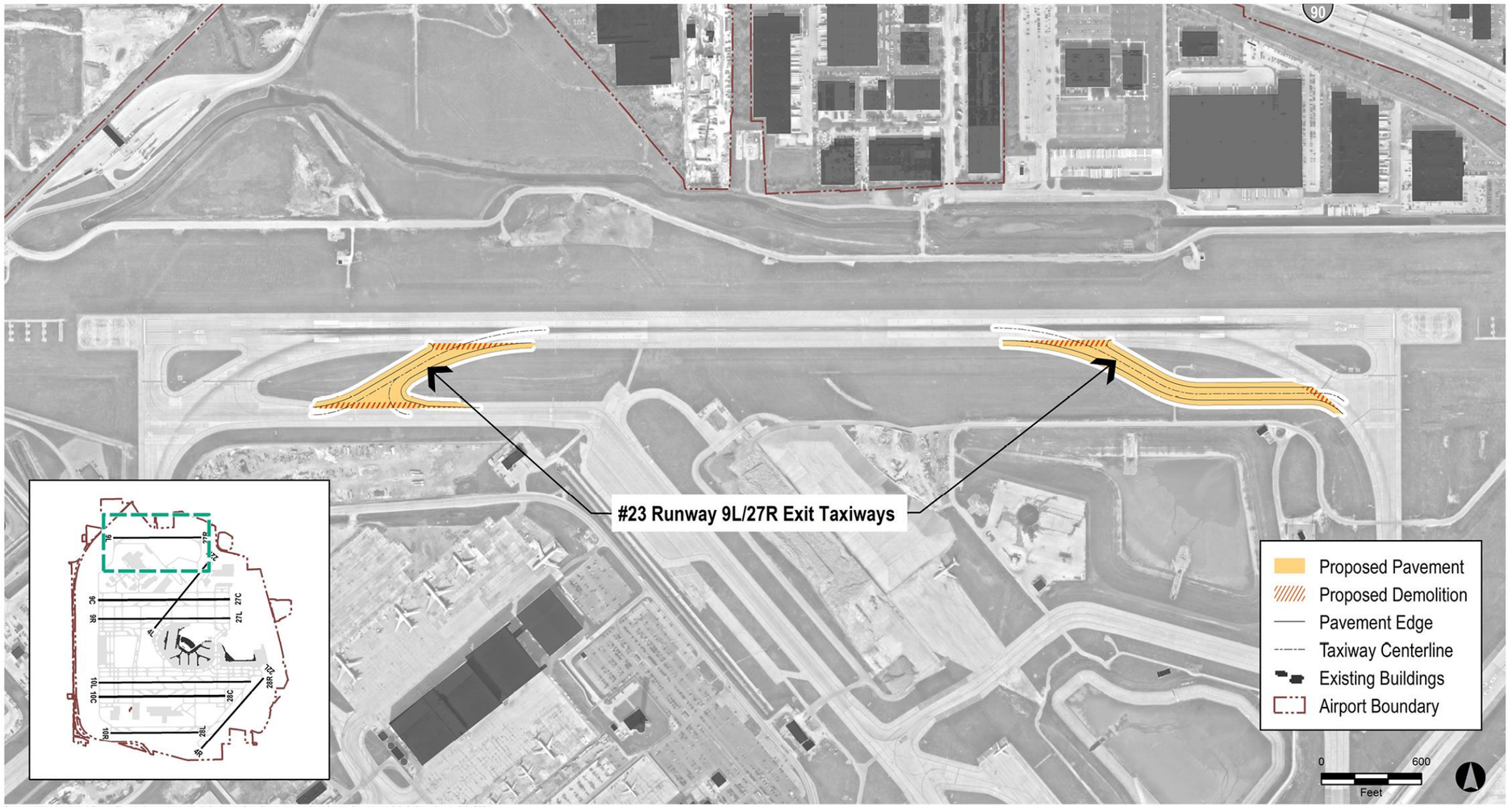


Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 1 of 2)

▸ Exhibit ES-5



Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Airfield and Taxiway Improvements Not Required by the Terminal Projects (Set 2 of 2)

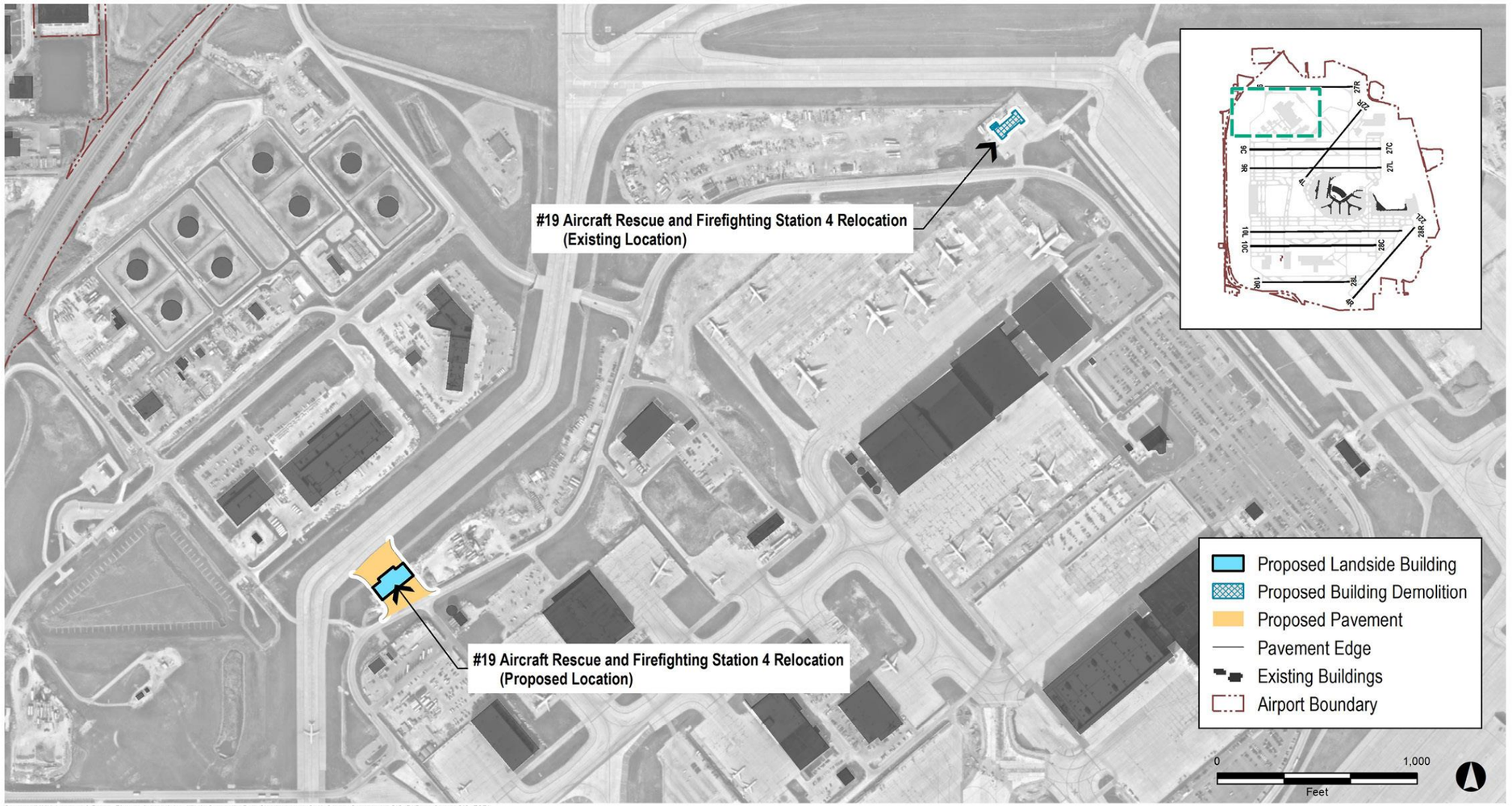
▸ Exhibit ES-6

Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Support Facilities Not Required by the Terminal Projects (Set 1 of 3)

Exhibit ES-7



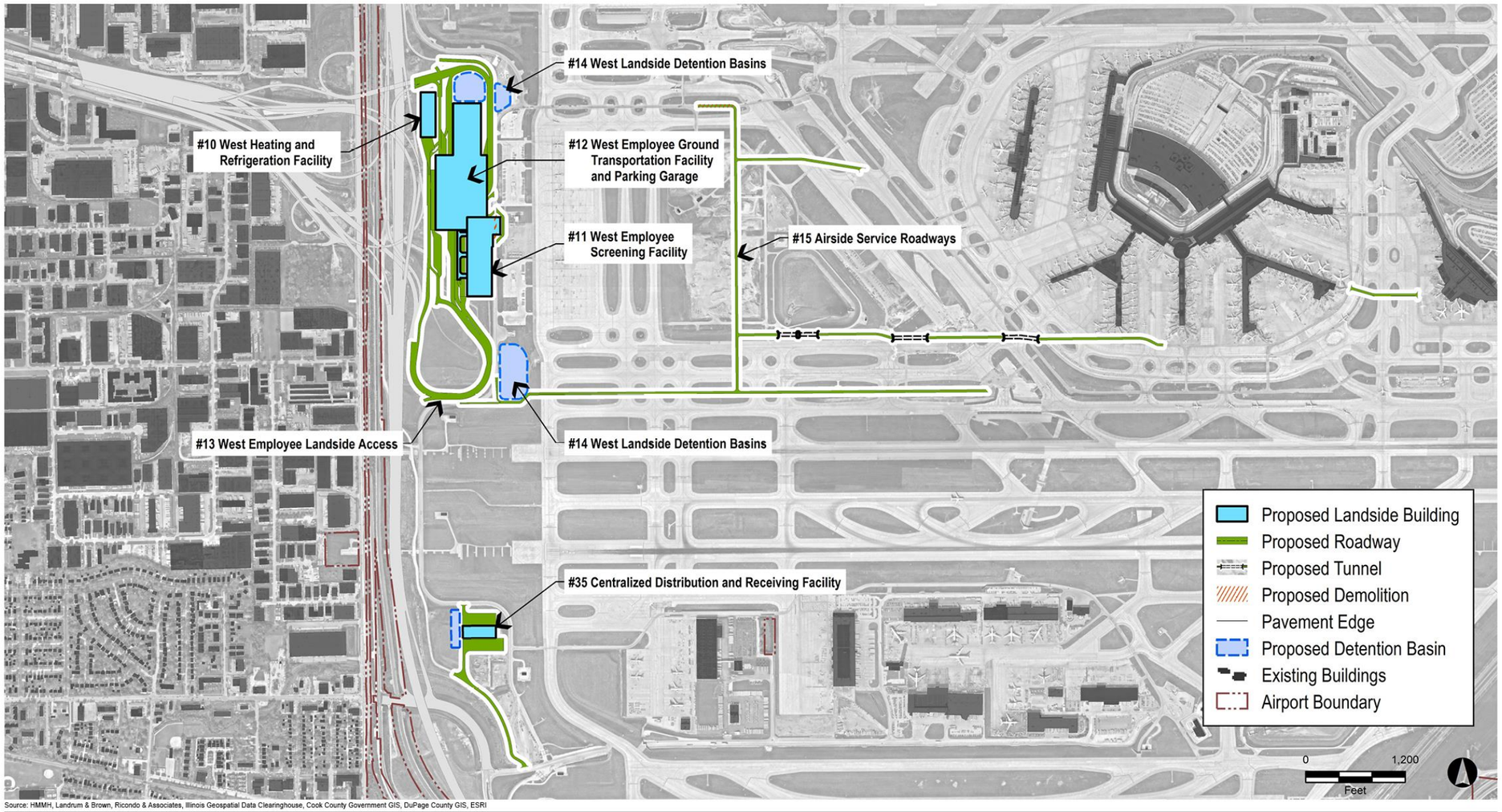
Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Support Facilities Not Required by the Terminal Projects (Set 2 of 3)

Exhibit ES-8

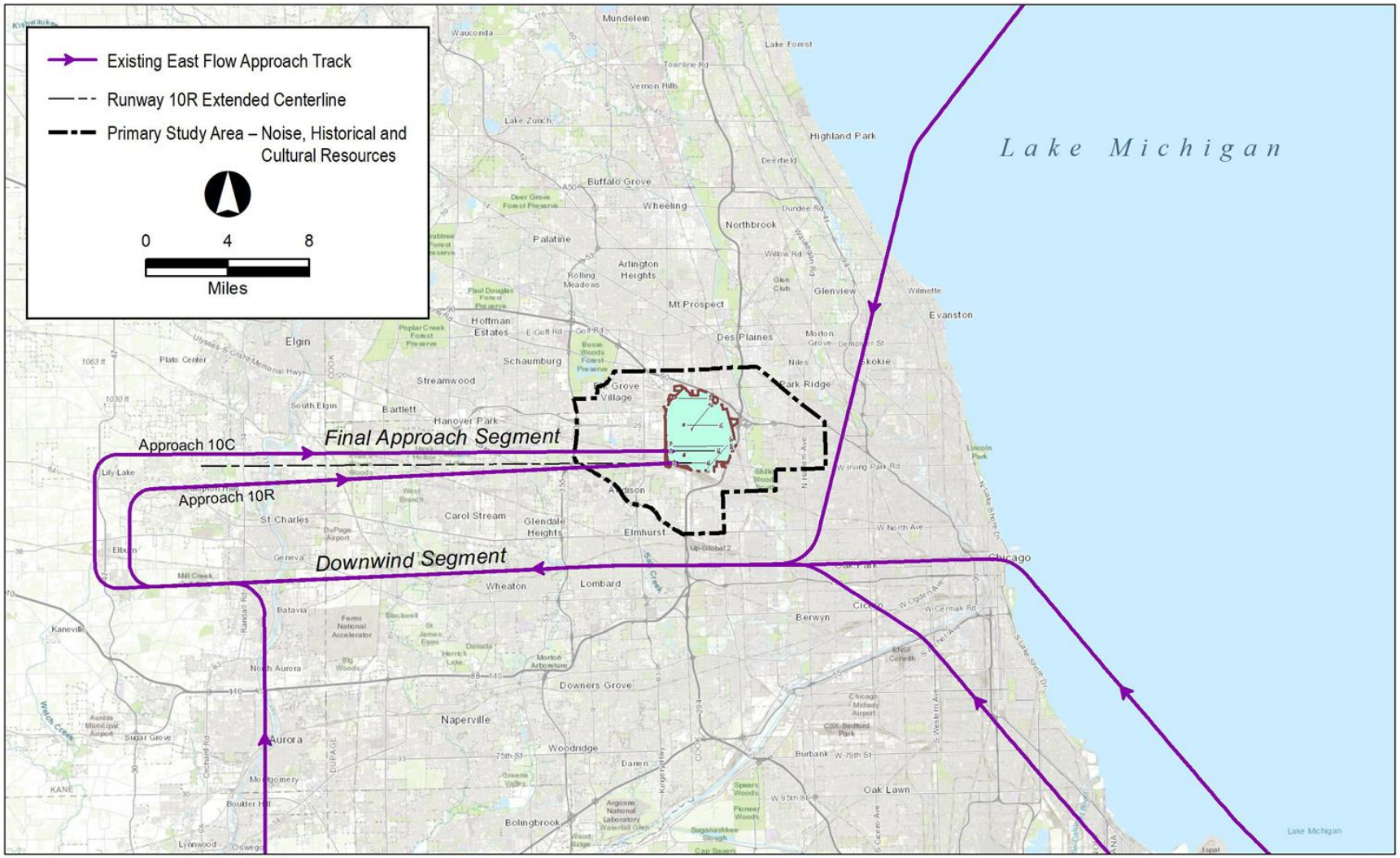


Source: HMMH, Landrum & Brown, Ricondo & Associates, Illinois Geospatial Data Clearinghouse, Cook County Government GIS, DuPage County GIS, ESRI

Chicago O'Hare International Airport
Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Support Facilities Not Required by the Terminal Projects (Set 3 of 3)

Exhibit ES-9



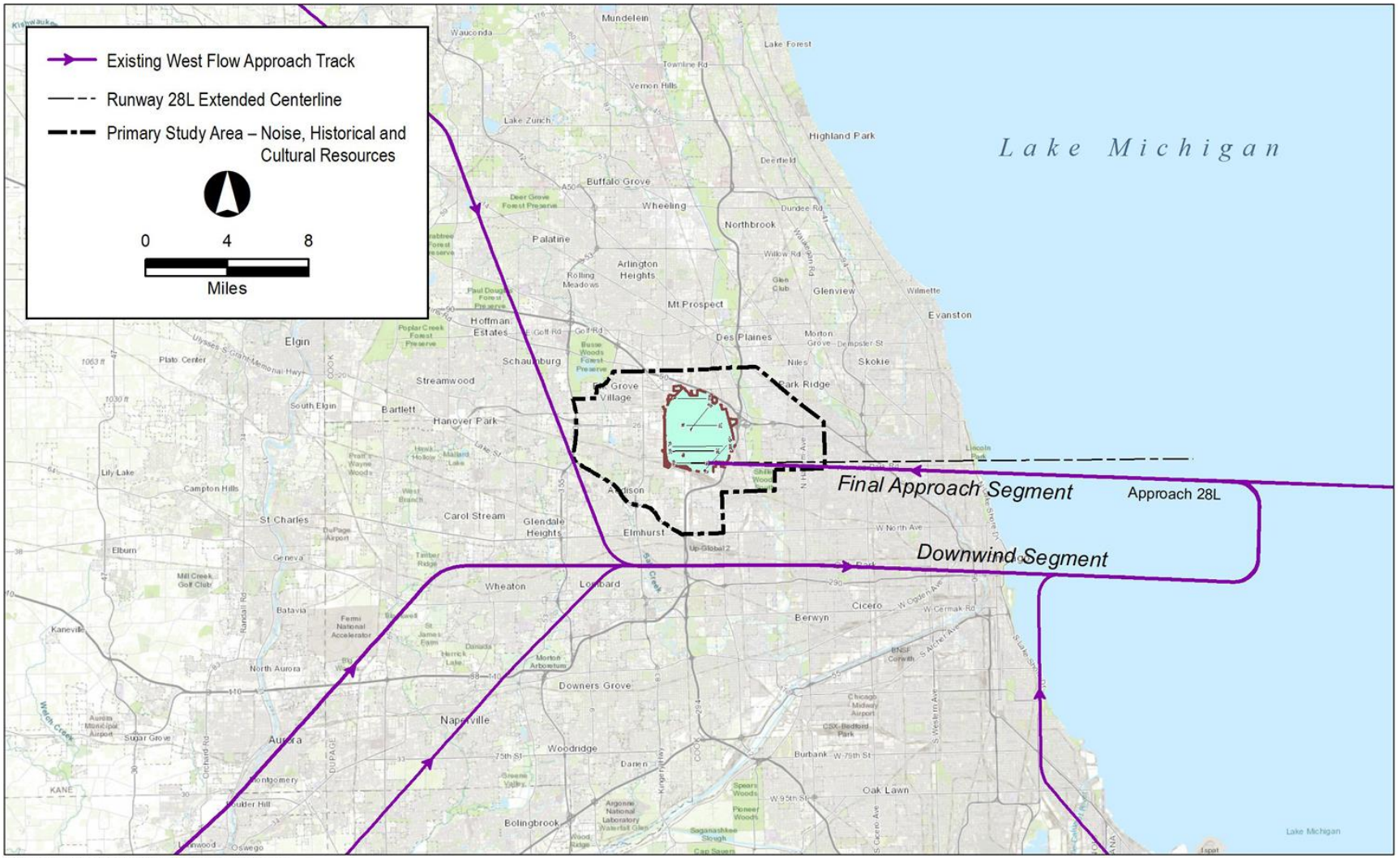
Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

2.5 Degree Offset Approaches for Existing East Flow

Exhibit ES-10



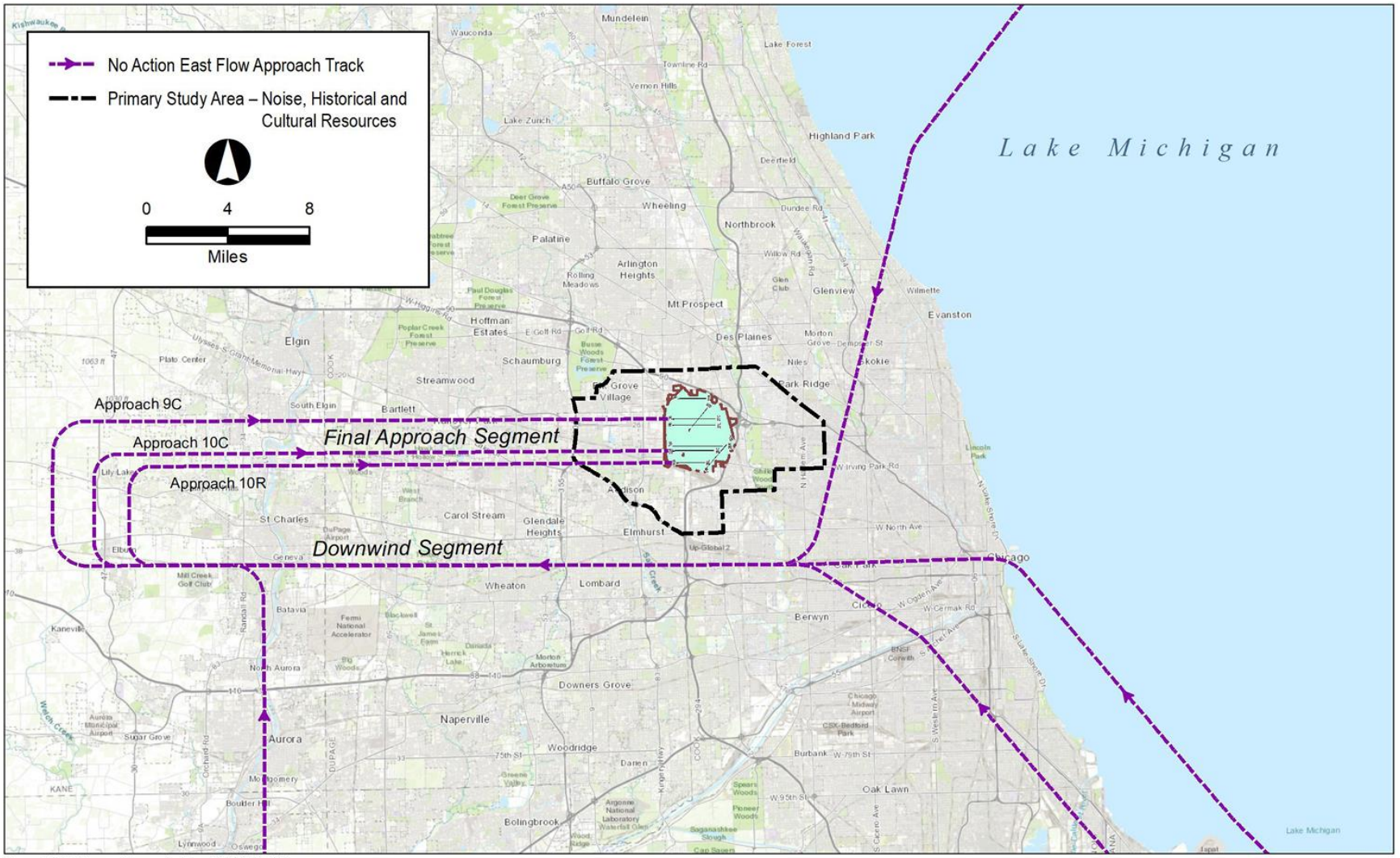
Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

2.5 Degree Offset Approaches for Existing West Flow

Exhibit ES-11



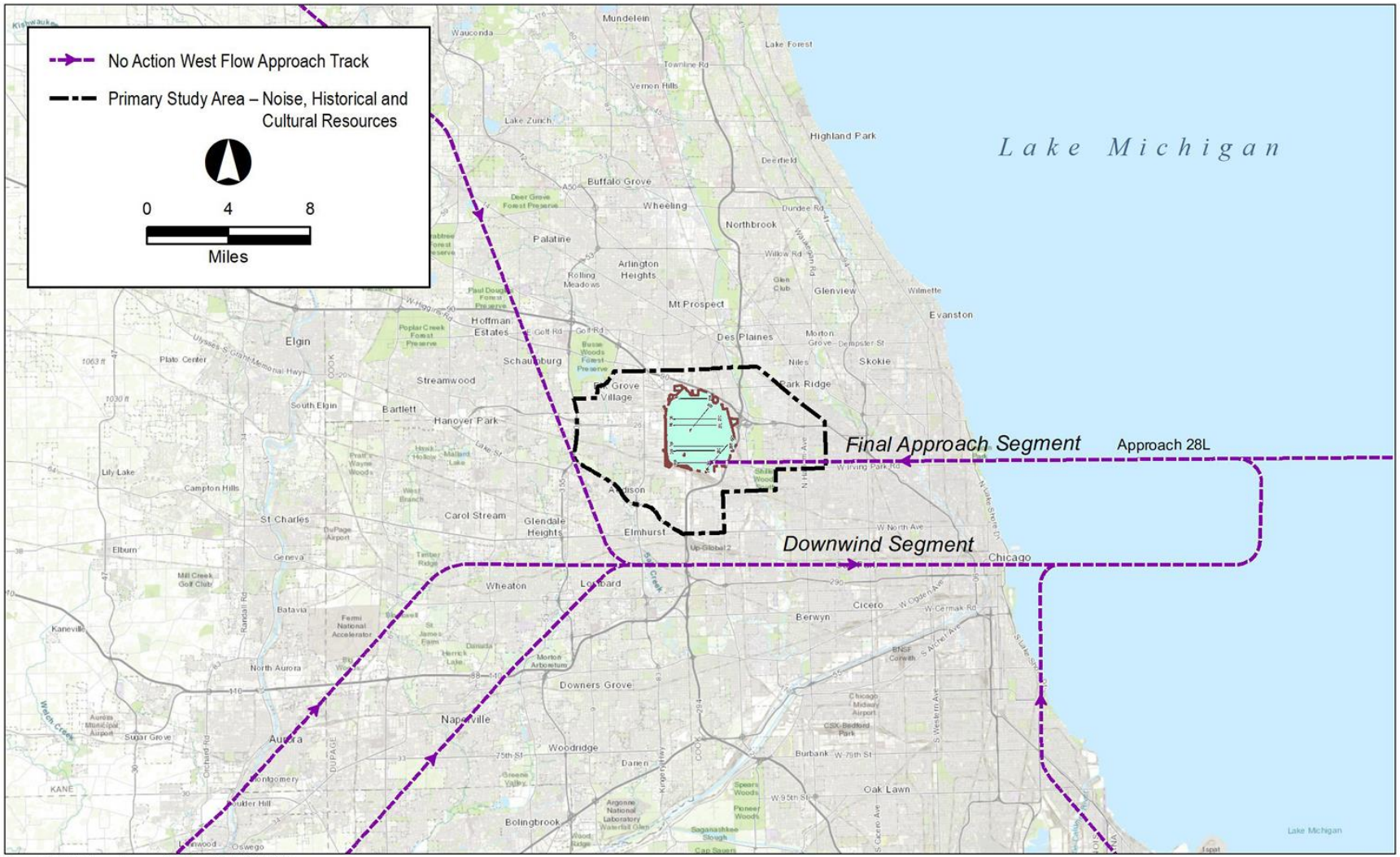
Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Approaches Without Offset for No Action East Flow

Exhibit ES-12



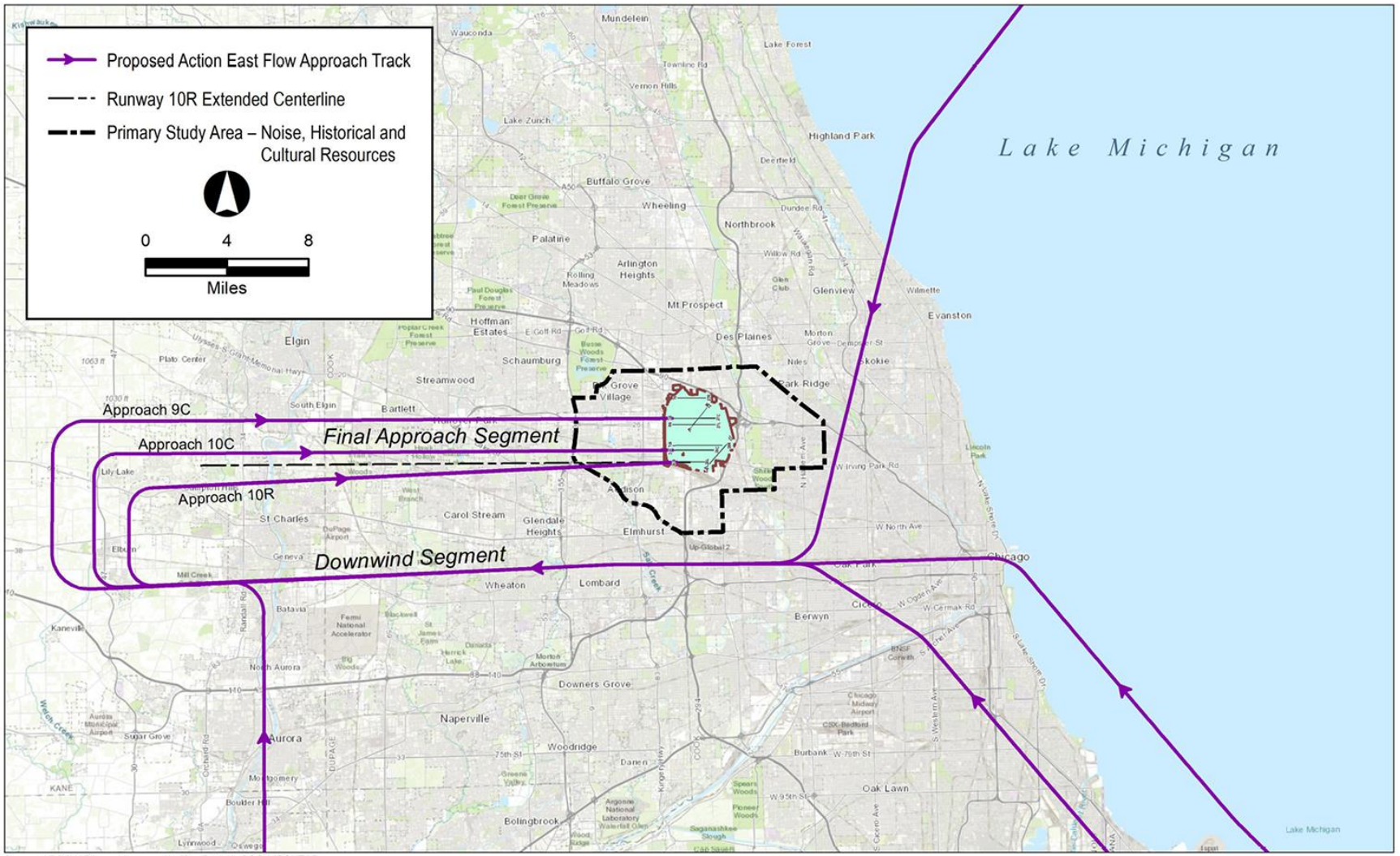
Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

Approaches Without Offset for No Action West Flow

Exhibit ES-13



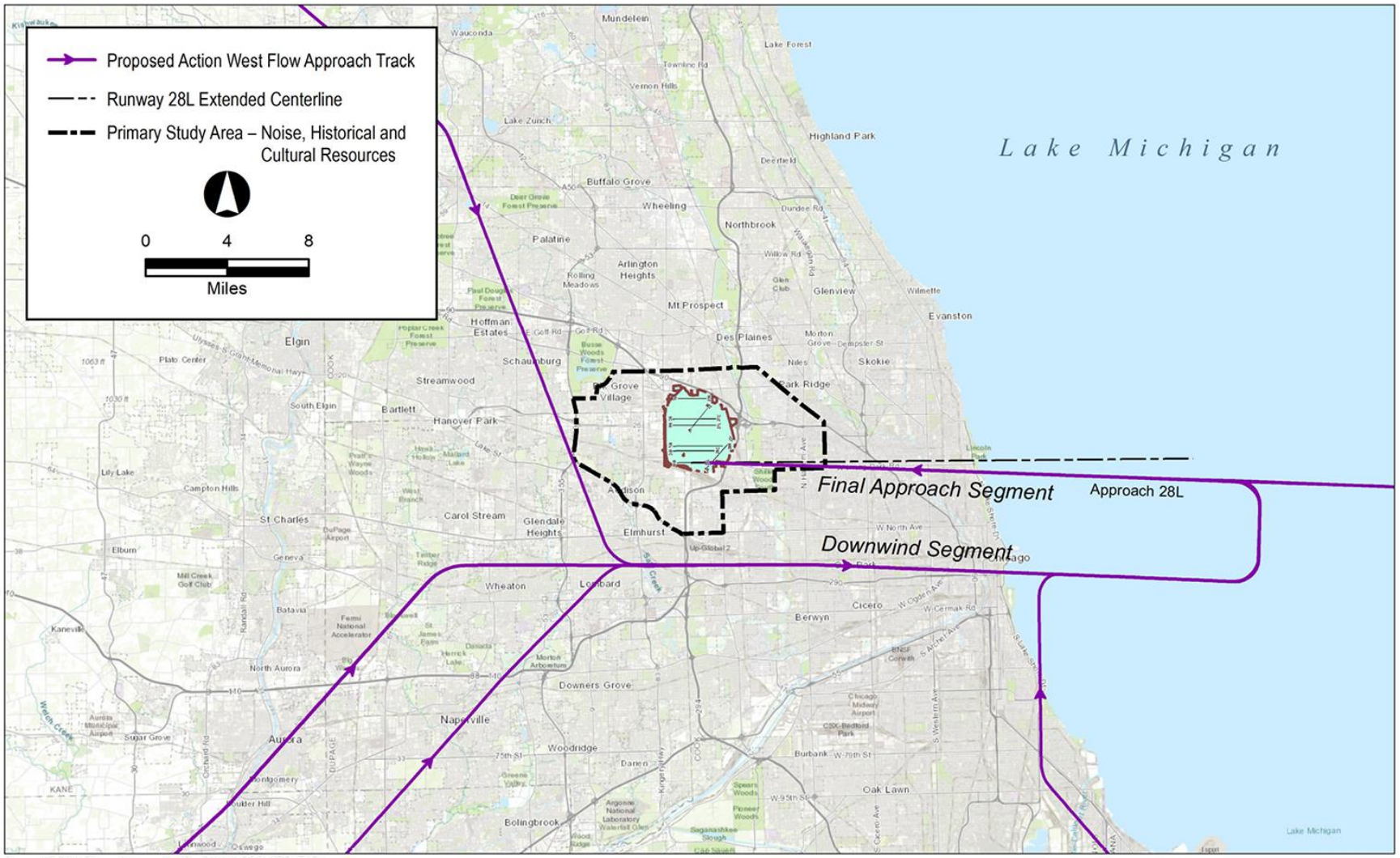
Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

2.5 Degree Offset Approaches for Proposed Action East Flow

▶ Exhibit ES-14



Source: HMMH, DeLorme, Intermap, GeoBase, USGS, NPS, ESRI

Chicago O'Hare International Airport

Terminal Area Plan and Air Traffic Procedures Environmental Assessment

2.5 Degree Offset Approaches for Proposed Action West Flow

▶ Exhibit ES-15

ES.1 FORECAST

Aviation activity forecasts are integral elements of the NEPA evaluation process and form the basis upon which several key environmental resources are established. The level of aircraft activity, fleet mix, and the distribution of operations over a 24-hour period have a notable effect on aircraft noise and air emissions.

The CDA submitted documentation with its annual activity and design day forecasts for enplanements and operations—including passenger airlines, cargo airlines, general aviation, and military—to the FAA. The FAA completed a comprehensive review of the CDA's forecasts to determine if the annual enplanement and operation levels and assumptions were appropriate. They were evaluated to determine whether the Design Day Flight Schedules developed by the CDA were reasonable and appropriate for environmental modeling purposes for the EA. A key element in the review of the forecasts was whether, historically, the addition of new runway capacity with the OMP and gates provided over time has induced demand. The analysis included a review of passenger traffic trends at O'Hare, Chicago, and the United States aviation industry, trends in aircraft operations and fleet mix, and peak month average day activity in design day flight schedules. In addition, gated flight schedules demonstrate that forecast future activity can be accommodated on the existing gates, albeit with a reduced level of service.

Sensitivity analyses on the forecast were completed for a two-year shift in the project timeline and for the COVID-19 pandemic. The forecast documentation can be found in **Chapter 1** and **Appendix C.**

ES.2 PURPOSE AND NEED

In general, these improvements are needed at O'Hare to provide adequate terminal, gate, and apron areas, and to efficiently accommodate the existing and projected demand for originating and connecting hub operations and passengers as defined in **Chapter 1**. The specific purposes of the Proposed Action are to:

- Groups 1, 3, and 5: Meet FAA design standards,
- Group 1: Provide terminal facilities that meet industry-recommended standards and modern customer service expectations,
- Group 2: Maintain CDA financial independence and meet financial obligations,
- Group 4: Maximize employee parking and screening capability while also optimizing safety and security of goods processing and commercial vehicle holding, and
- Group 5: Retain operational efficiency and prevent additional delay.

The needs of the Proposed Action are to:

- Group 1: Terminal Projects
    - Provide updated terminal facilities to address those that have reached the end of their design life.
    - Provide facilities that meet modern passenger needs.
    - Facilitate domestic and international airline partner operations to ensure that passengers, luggage, and aircraft can transition between the two types of travel.

  - Provide sufficient gate frontage and availability, gate flexibility, and taxiway connections to efficiently accommodate aircraft fleet mix.
  - Provide adequately sized curbside facilities and ground access to Terminal 5.
- Group 2: On-Airport Hotels
  - Increase non-aeronautical revenue.
- Group 3: Airfield and Taxiway Improvements not required by the Terminal Projects
  - Provide additional temporary aircraft parking positions.
  - Have Runway 28R blast pad to meet FAA standards.
  - Improve efficiency and reduce aircraft occupancy time on Runway 9L/27R.
- Group 4: Facilities not Required by the Terminal Projects
  - Provide additional airline employee parking.
  - Safely and efficiently process goods currently being brought into the terminal core.
- Group 5: Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L
  - Have efficient approach capabilities for independent, simultaneous approaches that would enable use of Runway 10R or Runway 28L when Runway 10C or 28C is in use, respectively.

Discussion of the purpose and need is provided in **Chapter 2**.

ES.3 ALTERNATIVES

Chapter 3 describes the alternatives screening process that the FAA used to identify a range of reasonable and feasible alternatives that meet the purpose and need of the Proposed Action. As noted above, there are five groups of projects in the Proposed Action with specific needs identified for each project group. The alternatives discussed in **Chapter 3** are designed to address each set of needs. **Appendix C** contains background material and detailed analysis that supplements the material contained in **Chapter 3**.

The alternatives evaluation for this EA followed a three-step screening process, reflecting CEQ, FAA, and special purpose law considerations. As detailed in **Section 3.4**, only one Group 1 alternative passed Steps 1 and 2. During Step 3, it was shown that this alternative would cause impacts to resources protected under special purpose environmental laws and regulations, principally impacts to historic resources considered within Section 106 and Section 4(f) resources. During Step 3, it was shown that there are no prudent and feasible alternatives that would avoid the on-airport Section 4(f) resources. The FAA then considered variations to the alternative that would minimize impacts to the 4(f) resources and avoid adverse effects. Numerous variations were identified as lessening the effects, but only one variant was found to avoid an adverse effect. After the alternatives screening process, the CDA incorporated the variant to the O'Hare Global Terminal (OGT)/Concourse B, Rotunda, and Concourse C/Satellite 1 as components of the Proposed Action. Two alternatives were carried forward for detailed consideration of environmental consequences in this EA: the No Action Alternative and the CDA's final Proposed Action Alternative.

The alternatives are described in detail in **Appendix C**, Section C.2 and summarized in **Section 3.9**.

ES.4 SUMMARY OF FINDINGS

This section summarizes potential environmental impacts that would result from implementing the Proposed Action. **Chapter 5** contains additional information documenting the potential environmental impacts that would occur as a result of all the alternatives.

The analyses presented in **Chapter 5** cover three separate conditions (e.g., specific years):

- The 2018 Existing Condition—representing the conditions present during calendar year 2018 and before the start of the EA process.
- The 2025 Interim Condition—representing the conditions three years after the proposed start of project construction for the No Action and Proposed Action Alternatives.
- The 2032 Build Out Condition—representing the conditions ten years after the start of the project and the planned timeframe for completion of project construction for the No Action and Proposed Action Alternatives.

The summary of findings in this Executive Summary focuses primarily on the 2032 Build Out Condition of the Proposed Action as compared with the 2032 Build Out Condition of the No Action Alternative unless noted otherwise.

ES.4.1 Resource Categories Dismissed

In preparing this EA, the FAA determined that certain environmental resources do not require detailed analysis either in whole or in part. Activities associated with either the Interim Condition of the Proposed Action or the Build Out Condition of the Proposed Action would not have the potential to adversely or beneficially impact the affected environment associated with such resources. For this reason—and consistent with the CEQ and agency guidance[7] encouraging focus on impact categories where there is potential for significant impacts or uncertainty about impacts caused by a Proposed Action—this EA does not examine the effects on the following three environmental impact categories:

- Coastal resources
- Farmlands
- Land Use
    - With respect to noise from aircraft operations, compatibility of existing and future off-airport land-use patterns is assessed as part of the analyses undertaken for the noise environmental impact category (see **Section 5.5**).
    - Analyses otherwise contemplated for this category consider potential conflicts between the Proposed Action and the objectives of federal, tribal, state, regional, and local land use plans, policies, and controls for the area concerned. Because land use at O'Hare is already recognized in federal, state, regional, and local land use plans, and given that the Proposed Action primarily consists of construction projects well-removed from the boundary of O'Hare and thus removed from adjacent, potentially conflicting land uses, dismissal of this aspect of the category is warranted.

[7] FAA Order 1050.1E, Change 1 Guidance Memo #2, Guidance on Preparing Focused, Concise, and Timely Environmental Assessments, January 10, 2011

These resources are either not present where the activities associated with the Proposed Action would occur, there is no potential for the activities associated with the Proposed Action to create effects on these resources that would rise to a level of significance, as identified in FAA Order 1050.1F, or the resource is addressed in another environmental impact category.

Additional information on resource categories dismissed and retained can be found in **Section 5.2.**

ES.4.2 Air Quality

The Proposed Action would not cause or contribute to any exceedances of the National Ambient Air Quality Standards nor delay attainment of the ozone standard (for which the Chicago area is designated "nonattainment"). In addition, the air pollutant and pollutant precursor emissions that would result from the Proposed Action are included in the Illinois State Implementation Plan, and as such, no mitigation measures are required. Regardless, the CDA is committed to implementing best practices to reduce public health and environmental effects during construction and operation of the Proposed Action to the extent practicable. These best practices are described in the City of Chicago's Sustainable Airport Manual (SAM).[8]

The City of Chicago developed the SAM, and it has become an integral part of overall design and construction standards for airport projects. The SAM supports the City's ongoing efforts to implement more environmentally sustainable buildings and infrastructure. Many of these initiatives build on the City's existing environmental best management practices (BMPs) and are intended to supplement existing federal, state, and/or local regulatory requirements with additional best practice environmental strategies and considerations. The recommendations in the SAM are considered by the airport in every step of the design, planning, and implementation of improvements at O'Hare.

The Proposed Action would be constructed in accordance with the provisions of the current version of FAA AC 150/5370-10, Standard Specifications for Construction of Airports.[9] The following measures, described in and/or consistent with the SAM, will be considered to reduce pollutant emissions and minimize any temporary adverse effects on air quality:

- Scrap metal from construction, repair, and demolition activities would be gathered on-site at the airport in staged, dedicated recycling dumpsters.
- Construction and demolition debris would be recycled and prevented from entering area landfills.
- Ultra-low sulfur diesel fuel could be used in diesel-powered construction equipment.
- Where practicable, diesel engine retrofit technology could be used in off-road equipment, including technology such as diesel oxidation catalyst/diesel particulate filters, engine upgrades, engine replacements, or combinations of these strategies.
- Encourage use of construction equipment with engines that have increased combustion efficiency (for example, equipment greater than 50 horsepower could target Tier 4 emission standards, and construction equipment that is less than 50 horsepower could target Tier 3 emission standards).[10]

[8] Chicago Department of Aviation, Sustainable Airport Manual Version 4.0, https://www.flychicago.com/SiteCollectionDocuments/Community/Environment/SAM/Full_SAM_v4.0.pdf.

[9] Federal Aviation Administration, AC 150/5370-10, Standard Specifications for Construction of Airports, December 21, 2018, Current version at the time this EA was prepared was version 10H, https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentnumber/150_5370-10.

[10] USEPA has implemented regulations and a tiering system to reduce emissions from off-road equipment with increasing combustion efficiency (i.e., decreasing emissions) where Tier 1 is the least efficient (greatest emissions) and Tier 4 is the most efficient (least emissions). The regulations have been implemented over time such that Tier 1 was phased out in the 1990's and Tier 2 was required, followed by implementation of Tier 3 and Tier 4 by 2015 with a phase out of Tier 2.

- Heavy-duty off-road diesel equipment should have an engine model year of 2010 or later, heavy duty alternative fuel vehicles should have an engine model year of 2010 or later, and any equipment retrofitted with Level 3 controls should have the emissions that are equal to an engine model year of 2010 or later.
- Limit unnecessary idling times on diesel-powered engines.
- Use electrically powered equipment rather than diesel power equipment, where available.
- Control construction dust by implementing a dust-control plan that includes:
    - Spraying water on dirt piles and streets/roads and
    - Reducing dust-generating activities in periods of high winds.

Additional information on potential air quality impacts can be found in **Section 5.3.**

ES.4.3 Climate

There would be increased airport-related emissions as part of the Proposed Action. There are currently no regulatory standards for greenhouse gas (GHG) emissions. Therefore, the estimated increase in airport-related emissions for the Proposed Action Alternative does not require mitigation. Regardless, the City of Chicago is committed to the use of best practices that would reduce public health and environmental impacts during construction and operation of the Proposed Action. The best practices are outlined in the City's SAM, which provides guidance on the incorporation of sustainable elements into a project. Many of these elements reduce GHG emissions. For example, the City encourages contractors working on projects at O'Hare to use clean vehicles—vehicles fueled by compressed natural gas or fuel/electric hybrids—for employee shuttle buses and light-duty vehicles. The City also requires staging areas for employees to congregate and board multiple-occupancy vehicles to access project sites. Another requirement is that new heating, ventilation, and air conditioning (HVAC) systems use low global warming potential refrigerants to minimize emissions (i.e., encouraging the use of carbon dioxide, ammonia, and propane).

Additional information on potential climate impacts can be found in **Section 5.4.**

ES.4.4 Noise and Noise-Compatible Land Use

There would be a change in noise exposure under the Proposed Action. There would be areas of increased noise and areas of decreased noise within the Proposed Action 65 Day-Night Average Sound Level (DNL) contour compared with the No Action Alternative. Some areas of noise increases exceed the FAA threshold of significance for noise impacts. Compared with the Build Out Condition of the No Action Alternative, the Build Out Condition of the Proposed Action Alternative would add 571 residential housing units within the 65 DNL, and 247 housing units would be removed from within the 65 DNL. This would result a net difference of 324 housing units within the 65 DNL compared with the Build Out Condition of the No Action Alternative.

The Proposed Action was also evaluated for significant noise impacts. A significant noise impact would occur if there is a 1.5 decibel (dB) increase with the Proposed Action 65 DNL, as compared with the No Action Alternative, over noise-sensitive land use. Of the 571 additional housing units within the Proposed Action 65 DNL, 227 housing units would be exposed to a significant noise impact with the Proposed Action compared with the No Action Alternative; 224 of the 227 residences have been previously mitigated with sound insulation by the CDA, making them compatible structures for noise. Two of the three remaining residences are scheduled to be completed in 2022 as part of the CDA's ongoing Residential Sound Insulation Program (RSIP). The third residence declined the invitation for sound insulation; therefore, the

FAA has determined that the residence is compatible for noise purposes. Therefore, while there are 227 housing units that will experience a significant impact in noise, all 227 units are considered compatible for noise by the FAA. The CDA and the FAA will evaluate one school (Transition Learning Center) that would be exposed to a significant noise impact for potential eligibility for school sound insulation.[11]

There are 11,379 existing housing units within the Proposed Action 65 DNL contour, and 6,277 of those residences have not previously been mitigated by the CDA as they are outside the area of the existing RSIP. The CDA could expand its RSIP to include these areas in the Proposed Action 65 DNL noise contour in the Build Out Condition.

Other noise minimization measures that the CDA intends to continue are:

- The existing Fly Quiet Program,
- The Airport Noise Management System,
- The O'Hare Noise Compatibility Commission to oversee noise mitigation efforts around O'Hare, and
- Use of the ground run-up enclosure during engine run-up testing.

Additional information on potential noise and noise compatible land use impacts can be found in **Section 5.5.**

ES.4.5 Historical, Architectural, Archeological, and Cultural Resources

The FAA determined that three existing on-airport properties that may be impacted by the Proposed Action were eligible for the National Register of Historic Places: Terminal 1, the Rotunda, and the CDA Control Tower. The Illinois State Historic Preservation Office (SHPO) concurred with the FAA's determinations of eligibility in letters dated September 12, 2019, and December 18, 2019 (see **Appendix G**, Attachments G-2.1, G-2.2, G-2.3, and G-2.4). The FAA initially determined that the Proposed Action would have no effect on the CDA Control Tower and no adverse effect on the other two eligible properties. The FAA also determined that the Proposed Action would have no effect to off-airport historical, architectural, archeological, or cultural resources.

In correspondence dated January 24, 2022, the SHPO concurred with the no effect finding to the CDA Control Tower and off-airport historic properties. In this correspondence, the SHPO noted that the stage of design presented for the OGT avoids an adverse effect to Terminal 1 and the Rotunda with conditions. The FAA responded to the SHPO on March 3, 2022, identifying conditions for future review. Following this, the SHPO concurred with the FAA's finding of no adverse effect to Terminal 1 and the Rotunda in correspondence dated April 13, 2022 (see **Appendix G**, Attachment G-3.3).

If the Proposed Action is approved, the CDA will provide design plans to the SHPO for review to assess that the Proposed Action will continue to have no adverse effect on Terminal 1, which includes Concourses B and C, and the Rotunda. The review will not occur until the CDA has had the opportunity to engage with federal regulatory agencies—Customs and Border Protection, Transportation Security Administration, etc.—and airline stakeholders to ensure project stability in terms of both scope and budget of the project as it relates to the interface design assumptions. As such, the CDA estimates that the plan review with SHPO will occur after the 30 percent design development but before the 90 percent design development milestone; therefore, the review will likely occur around the 60 percent design development milestone.

[11] Eligibility for facilities located within a multi-use or commercial building will be evaluated on a case-by-case basis.

Additional information on potential historical, architectural, archeological, and cultural resources impacts can be found in **Section 5.6.**

ES.4.6 Department of Transportation Act Section 4(f)

The FAA identified on-airport and off-airport Section 4(f) properties. On-airport, the Proposed Action would result in no effect to the CDA Control Tower and no adverse effect under Section 106 to the two other on-airport historic sites (the Rotunda and Terminal 1). As a result, the FAA has determined that there would be no impact for the CDA Control Tower and a *de minimis* impact for Terminal 1 and the Rotunda under Section 4(f). Since all construction activity would occur on-airport, analysis of off-airport impacts was limited to constructive use. Based on this analysis, the Proposed Action would not result in a constructive use effect on any off-airport Section 4(f) properties. As a result, the Proposed Action would not have a significant impact on any Section 4(f) properties. Therefore, no mitigation measures are required.

Additional information on potential Section 4(f) impacts can be found in **Section 5.7.**

ES.4.7 Biological Resources

The airport and its surrounding environs are entirely urbanized. Over the last 20 years, much of the airport has undergone construction related to the OMP. These historical, ongoing disturbances limit suitable habitat for most species. Small, isolated patches of trees or undeveloped open areas do exist around the periphery of airport property. Species better adapted to urban environments are present at the airport and surrounding areas. Due to the degree of development at the airport, most land use consists of impervious area and mowed/maintained landscapes.

The FAA determined there would be no effect on threatened and endangered species or protected habitat under Section 7 of the Endangered Species Act. Although there would be no significant impacts on biological resources, BMPs and conservation measures would be incorporated into project construction practices to minimize potential impacts to habitats and biota and may include:

- BMPs for erosion and sediment control, such as surface protection for slopes, sediment capture, and runoff management.
- Installation of silt curtains and berms, to the extent possible, to isolate the work area during fill placement to prevent temporary impacts on water quality on the airport.

Additional information on potential biological impacts can be found in **Section 5.8.**

ES.4.8 Light Emissions and Visual Impacts

Potential impacts from light emissions would be associated with the on-airport non-aeronautical projects (i.e., hotels)—or Group 2 projects—and the air traffic actions—or Group 5 projects. The effects from the hotels would arise from construction and operation of the hotels. Specifically, illumination of parking areas, buildings, and signage would be anticipated upon completion of construction. With respect to Group 5 projects, the aircraft on arrival to Runway 10R/28L would generate light emissions with intensities similar to those experienced in existing conditions. If the Proposed Action were not selected and aircraft were to fly the runway extended centerline, the position of the aircraft overhead would be laterally offset to a minor extent—runway centerline versus a 2.5 degree offset.

Given the placement of the proposed hotel on the west side of the MMF, at the northeast corner of the airport, and depending upon its ultimate height, it is foreseeable that the building itself—including any aviation red lighting required for safety of aircraft overflying landing on Runway 27R—would be visible

from Rosemont residences to the east of the MMF structure and the railroad right-of-way. Illuminated off-street parking associated with the hotel would also have light emissions. The Group 2 hotel associated with Terminal 5 would similarly create additional light emissions; however, this site's distance from the eastern airport boundary is considerably greater than that of the MMF hotel site.

Additional information on potential light emissions and visual impacts can be found in **Section 5.9.**

ES.4.9 Hazardous Materials, Solid Waste, and Pollution Prevention

All pollution prevention measures outlined in the CDA's SAM and in **Section 5.10** are scalable and flexible to meet the needs of the Proposed Action. Therefore, no additional action is required or foreseen at this time. The SAM has been and will continue to be updated regularly, as needed, to address changes in the regulatory framework.

Additional information on potential hazardous materials, solid waste, and pollution prevention impacts can be found in **Section 5.10.**

ES.4.10 Natural Resources and Energy Supply

While there will be increased demand for natural resources and energy supply under the Proposed Action, there are adequate supplies; therefore, mitigation is not required. The CDA has identified several sustainability practices in the SAM that are intended to minimize the use of natural resources and energy in project construction and operation.

Additional information on potential natural resources and energy supply impacts can be found in **Section 5.11.**

ES.4.11 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The socioeconomics analysis for this EA was limited to surface transportation and parking, which is discussed in Section ES.4.11.1. Environmental Justice (EJ) is discussed in ES.4.11.2. The Proposed Action did not have the potential to adversely affect children's environmental health and safety; therefore, this subcategory was not analyzed.

ES.4.11.1 Surface Transportation and Parking

The potential impacts on surface transportation for the on-airport roadways were analyzed. The level of service (LOS) and volume to capacity (V/C) ratios were determined for the on-airport terminal roadway segments. A total of 31 on-airport roadway links were analyzed under the No Action and Proposed Action Alternatives. Under the Proposed Action, one roadway segment would result in a LOS less than the acceptable "D" or a V/C ratio greater than 1.0. This segment is Link #6 – Terminal 1 upper-level access from I-190 westbound to through lane bypass with an AM Peak LOS E and a V/C ratio 0.90. Compared with the No Action Alternative, the LOS for Link #6 improves from F to E, and the V/C ratio improves from 1.03 to 0.90 under the Proposed Action. In addition, the six other roadway segments under the No Action Alternative with a LOS E or F improve to a LOS D or greater with the Proposed Action.

The potential impacts on surface transportation for off-airport roadways were analyzed using the same LOS and V/C ratio method. Under the Proposed Action, five roadways have been identified as having a LOS less than "D" and or a V/C ratio greater than 1.0, and one would have a LOS reduction of one level or more.

Only three study intersections would degrade to a LOS E or F from a LOS D or better, none of which have a V/C ratio of over 1.3. Two intersections maintain the same LOS F. The traffic simulation showed adequate operations of intersection and roadway segments without residual queuing. The Proposed Action would not result in significant impacts to the transportation network.

Additional information on potential surface transportation and parking impacts can be found in **Section 5.12.**

ES.4.11.2 Environmental Justice

Significant effects on the noise environment (and therefore EJ impacts) are anticipated for the Build Out Condition of the Proposed Action Alternative (see **Section 5.14**). Steps have been taken previously to mitigate the underlying environmental impact of significant noise impacts. Measures anticipated to continue include sound insulation of households to decrease the noise impact to below the threshold of significance.

It is expected that 227 residences would experience a potentially significant noise impact from the Proposed Action. Noise impacts exceeding the threshold of significance are predicted in nine Census Blocks that lie within two Block Groups. These residences are also in areas identified as areas of EJ concern. From housing data provided by the CDA, 224 of these 227 residences have already been sound insulated, leaving three residences (approximately 1.3 percent) that were not previously sound insulated under the CDA's ongoing RSIP. Two of the three remaining residences are scheduled to be completed in 2022 as part of the CDA's RSIP. When completed, this sound insulation would decrease the noise impact on the dwellings to a level that is considered less than significant. The third residence declined the invitation for sound insulation; therefore, the FAA has determined that the residence is compatible for noise purposes.

The estimated population affected in the 227 households would range from 530 to 433 people, depending on which Census data is used. Of this affected population, an estimated six persons would reside in dwellings that have not been mitigated to date.[12] Because of the mitigation implemented at the 224 residences and the offers made to the three remaining homes, these noise impacts would be less than significant. This would also mitigate the corresponding effects on areas of EJ concern. As a result, no effects rising to a level of potential significance for any environmental impact categories would occur in populated areas as a result of the Proposed Action. In addition, no impacts to the physical or natural environment would occur that would also uniquely and significantly affect EJ populations. Therefore, no further mitigation steps would be taken with respect to EJ populations; however, ongoing and future noise mitigation efforts previously discussed and already in effect would remain.

To further assess whether impacts would be predominantly or disproportionately borne by EJ populations, the FAA performed a detailed statistical analysis of the demographics of populations residing in areas where the significant effects would occur. The analysis indicates that the Proposed Action would not disproportionately burden racial or ethnic minorities, nor would it disproportionately burden low-income populations.

Additionally, Section 12.2.4 of the FAA Order 1050.1F Desk Reference states that "environmental justice impacts may be avoided or minimized through communicating early and consistently with the public and allowing ample time for public coordination." In conjunction with this EA, the FAA has engaged in targeted outreach to EJ communities of concern where a potential significant impact may occur. Specifically, targeted mailings describing the Proposed Action and the analyses undertaken have been sent to the

[12] The three residences that are not mitigated all lie within Census Block 170438408023013. Based on the average household size (1.9 persons per dwelling unit) for this Census Block, it is estimated that six persons would reside in those three dwellings.

specific areas of EJ concern. The targeted mailings augmented scoping for the EA efforts previously undertaken.

Additional information on potential EJ impacts can be found in **Section 5.14**.

ES.4.12 Water Resources

The water resources analysis for this EA was limited to wetlands, floodplains, surface waters, and water quality. The Proposed Action did not have the potential to adversely affect groundwater or wild and scenic rivers; therefore, these subcategories were not analyzed.

Wetlands that would be impacted by the Proposed Action at O'Hare are not natural and are characterized as small, isolated areas with relatively low water quality and limited runoff storage function due to their small sizes. These wetlands are not jurisdictional under the Clean Water Act and do not provide functions that rise to a level requiring mitigation; therefore, no mitigation is proposed. Efforts, however, would be made to minimize impacts during design and construction.

No portion of the Proposed Action would fall within the 100-year floodplain or floodway. Therefore, the Proposed Action would not result in impacts to regulated floodplains.

Impacts to water quality during construction would be minimized through Stormwater Pollution Prevention Plans, which included erosion control plans, and BMPs. The use of silt fences and/or vegetative filter strips to buffer drainages also would be included in the erosion control plans. Additionally, areas of disturbance would be revegetated to minimize erosion and impacts to surface waters.

Impacts to water resources under the Proposed Action would not be significant.[13]

Additional information on potential water resources impacts can be found in **Section 5.13.**

ES.4.13 Irreversible and Irretrievable Commitment of Resources

Implementation of the Proposed Action would involve committing a range of natural, physical, human, and fiscal resources. Construction of terminal facilities, airfield improvements, and support facilities (Groups 1, 3, and 4) implies and entails consumption of raw materials and resources (e.g., steel, cement, aggregate, asphalt, minerals, wood products, etc.) in a manner generally considered irretrievable. Fossil fuel, labor, and similar resources would be required during construction but would also be irretrievably consumed during ongoing operations of the proposed facilities. Similarly, for Group 5, ongoing operations would irretrievably consume fuel and labor, although not in a manner appreciably different from the No Action Alternative.

While the use of fossil fuels and construction materials is irretrievable, recycling and sustainability planning of designs and operation can address this to a degree. The Proposed Action Alternative's overall uses would not be anticipated to adversely affect their continued availability. Conversion of land use from vacant used for a detention basin to a hotel (the hotel next to the MMF in Group 2) is similarly an irreversible commitment of resources for the duration of the period that such land is used for such purposes. Finally, selection and implementation of the Proposed Action would require an irretrievable commitment of fiscal resources (i.e., federal and local funding).

[13] TAP Terminal 5 road improvement project is outside the O'Hare airfield stormwater system and is not included in the Christopher B. Burke Engineering, Ltd. studies—landside or airside. It is assumed that further planning and design of this project would include compliance with required stormwater regulation such that there would be minimal impact.

Additional information on potential irreversible and irretrievable commitment of resources impacts can be found in **Section 5.15.**

ES.4.14 Cumulative Impacts

Cumulative impacts are the total combined impacts on the environment from the Proposed Action and other past, present, or reasonably foreseeable actions. Past actions include those that occurred in the five years prior to 2018. Present and reasonably foreseeable future actions include those that were implemented after 2018 or would be implemented by 2032. No significant cumulative impacts would occur with the Proposed Action; therefore, no mitigation is warranted.

Additional information on anticipated cumulative impacts by resource and whether mitigation and minimization measures would be necessary can be found in **Section 5.16**.

ES.5 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

The views of communities—local residents, the general public, and stakeholders—are important to the FAA. As such, the FAA is committed to public involvement and agency input throughout the EA process. As summarized below, a variety of methods have been undertaken to gather input from local residents, the general public, and stakeholders.

The FAA conducted a scoping process with a 45-day public comment period from May 25 through July 9, 2021. FAA alerted the public to the scoping process via materials on the FAA website, posting public notices in the Federal Register and local newspapers, and sending e-mails to stakeholders, including elected officials, school board members, activists, and Tribal leaders.

Additionally, the FAA engaged in targeted outreach to EJ communities of concern where a potential significant environmental impact may occur. Specifically, targeted mailings were sent on April 20, 2022, to 227 households. These mailings describe the Proposed Action and the analyses undertaken to date.

Additional detail on the public involvement and agency coordination efforts can be found in **Chapter 6.**